IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:

Schwartz

Serial No.:

09/815,978

Filed:

March 22, 2001

HYDRAZINE-BASED AND CARBONYL-

BASED BIFUNCTIONAL CROSSLINKING

REAGENTS

Art Unit:

Unassigned

Examiner:

Unassigned

I hereby certify that this paper and the attached papers are being deposited with the United States Postal Service as first class mail in an envelope addressed to:

ATTN: BOX PGPUB DRAWINGS

Commissioner for Patents

Washington, D.C. 20231, on this date.

04/17/01

Date

PETITION PURSUANT TO 37 C.F.R. §1.182 - QUESTIONS NOT SPECIFICALLY PROVIDED FOR: REQUEST FOR ENTRY OF REPLACEMENT DRAWINGS

ATTN: BOX PGPUB DRAWINGS

Commissioner for Patents Washington, D.C. 20231

Dear Sir:

This is a Petition pursuant to 37 C.F.R. §1.182 to request the entry of replacement drawings in the publication of the above-identified application. The replacement drawings provided herewith are Formal Drawings. Therefore these drawings are of better quality than those originally filed. Applicants respectfully request the entry of the replacement drawings.

Respectfully submitted,

HELLER, EHRMAN, WHITE & McAULIFFE LLP

By:

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Attorney Docket No.: 37154-753 Address all correspondence to: Stephanie L. Seidman, Esq.

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R NH₂

hydrazine

semicarbazide

$$R \underset{O}{\bigvee} \stackrel{H}{\underset{NH_2}{\bigvee}}$$

370

hydrazide

thiosemicarbazide

thiocarbazide

$$R \xrightarrow[H]{O} H \xrightarrow[N]{H} NH$$

$$R \longrightarrow 0 \qquad NH_2$$

carbonic acid dihydrazine

hydrazine carboxylate

FIG. 1

FIG. 2 protein pH 4.7 or 7.4

2

FIG. 3

Title: Pr. JRAZINE-BASED AND CARBONYL-BASED BIFUNCTIONAL CROSSLINKING REAGENTS.
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FIG. 4

Preparation of 5'-aromatic alehyde-modified oligonucleotide:

Preparation of 5'-heteroaromatic hydrazine-modified oligonucleotide:

Conjugation of hydrazino-modified oligonucleotide to aldehyde-modified oligonucleotide

FIG. 5

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THE HYDRAZINE-BASED AND CARBONYL-BASED
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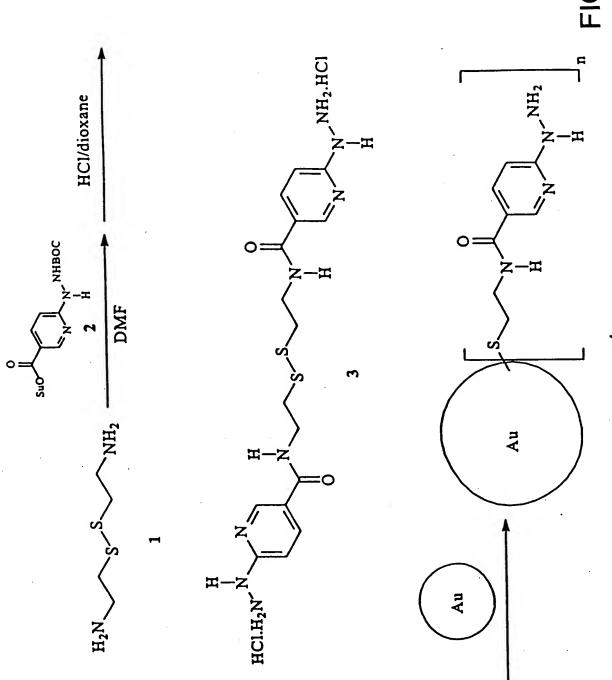
FIG. 6

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	1) EtOH/1% H ₂ O glass surface 2) wash 3) 0.1 M acetate, pH 4.7
THF	1) EtOH/1% H ₂ O glass surface 2) wash 3) 0.1 M acetate, 4) wash
χ-π /	Z-H
Suo Suo 2	
NH ₂	X-#
	Si CEt
EtO OEt EtO Si	Bto OEt Eto Si

....





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ONH2.HCI ONHBOC NHS, DCC DMF ONHBOC HCl/dioxane HOHN. 0 1) aq. HONH₂ HO' $Cl 2) H_30^{\dagger}$ ONHBOC HO HÓ dioxane, water, pH 7.5 chromatography DiBOC